School Shop

vol. VIII no. 9

MAY, 1949

Vocational Education in Eire
by Anthony F. O'Connor

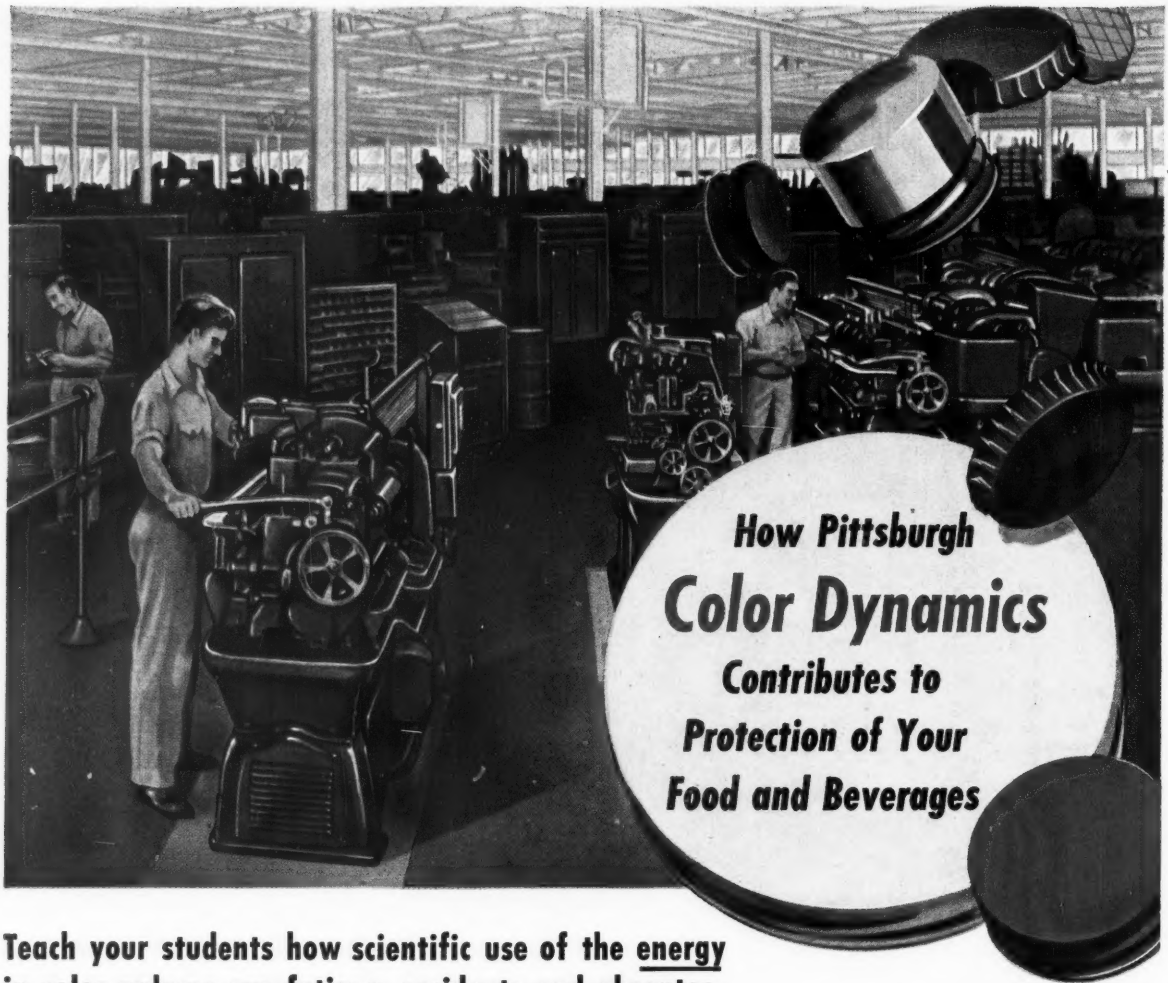
Dramatize Molecules
by Fred A. Baer

Aluminum Ashtray and Case
by Simon S. Palestrant

Glass Brick Table Lamp
by James B. Lidstone

On the cover: Demonstrating molecular action at Bret Harte Junior High School, Los Angeles, California. See page 7 for a description of this useful visual aid.

THE MAGAZINE FOR TEACHERS OF INDUSTRIAL EDUCATION



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In the Offing . . .

The next issue of SCHOOL SHOP will be the last for this school year. It will have some stimulating articles and project ideas that are guaranteed to keep your mind and hands busy through the vacation period. Watch for the interesting regular features such as From Washington and Instructional Resources that will bring you the latest. Altogether, the June number will be a worthy closing chapter in the 1948-1949 volume.

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School Shop

FOR INDUSTRIAL EDUCATION TEACHERS

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

"Yes" Is the Answer

Our Washington Letter this month quotes a question by Hollis P. Allen of the task force on education of the Hoover commission studying governmental reorganization. He asks: "Is it appropriate that the federal government should extend its substantial influence on curriculum only in the promotion of these few highly specialized areas (vocational education)? Can the government afford to be placed in the position of lending its prestige to these few areas while neglecting the total curricular needs of the country?"

The answer, obviously, is "yes" as far as the question of lending its prestige to vocational education is concerned. If Congress had not felt a responsibility for injecting a stimulus into local school systems so that curricular offerings would more nearly meet the needs of the school population, the Smith-Hughes law would never have been passed a third of a century ago. That the injection took is plainly seen from the present expenditures for vocational education by local school systems which dwarf federal aid to vocational education by comparison.

To our way of thinking, the federal government did a real service by "lending" its prestige (apparently a Hoover commission synonym for money) to efforts of local school districts to provide facilities for vocational education. If it could not have afforded such support, the program would have been curtailed or eliminated instead of expanded as it has been.

"The total curricular needs of the country" are another matter. Certainly the federal government has been negligent in assuming its responsibilities in other areas than vocational education. But pitting one need against another does not solve the problem. Dr. Allen does a disservice when he implies an either all or none answer to the federal government's responsibility.

A War Asset

The industrial-education field has benefited immeasurably from the GI Bill of Rights. The quality of students in the teacher-training institutions under this provision is excellent. For the most part, these students are mature, experienced individuals who have a background and a purpose that the prewar student sometimes lacked.

Many of those in training had trade experience before the GI Bill made it possible for them to continue their schooling. A high percentage of them are married and have children which means that they have a seriousness about their training which has not always been the case. All of them have had work experience and many continue to work while in college.

Most important, many of them have entered teaching from a sense of social responsibility and a real intention to better the lot of mankind. They are a good group and their future students will be the better because of them.

Attitudes vs. Skills

At periodic intervals business and labor groups come up with statements about how they are not concerned so much with wanting the schools to develop skills useful in industry, but they do want the schools to train young people who are "as intelligent and adaptable as possible in both hand and mind" or who have the "qualities and attitudes that make a good citizen, a good worker, and a thoughtful human being. Such things as a sense of responsibility, perseverance, courtesy, neatness, and safety habits . . ."

What always puzzles us about statements like this is the apparent belief of those who say them that these very qualities are not taught in vocational courses, that somehow these things are picked up elsewhere in the curriculum.

Any shop teacher knows that these things are the very essence of the program. Democratic attitudes can be taught just as effectively in the shop, if not more so, than in other areas of the school. The entire shop program is an activity program. It requires the actual carrying out of the attitudes and the demonstration of the qualities these people are seeking.

If at the same time the student learns a salable skill, he certainly should be an even greater asset to society. Good shop instructors teach for skill and these other qualities as well.

Your Editor

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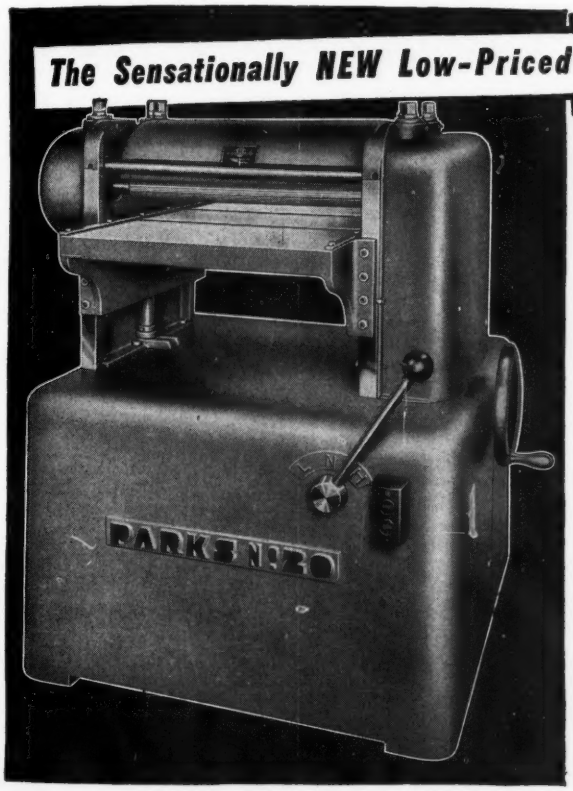

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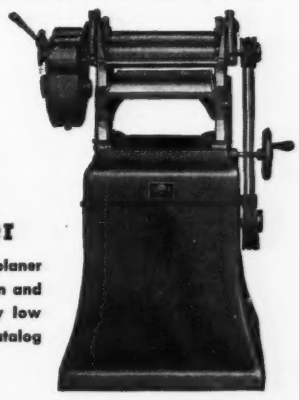

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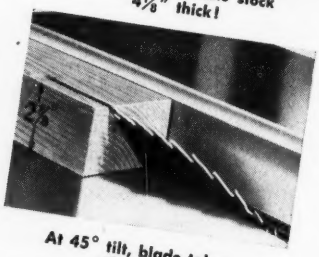

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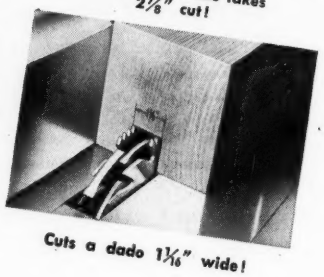

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S-56A

Vocational Education in Eire

The "Hobo" Instructor Settles Down

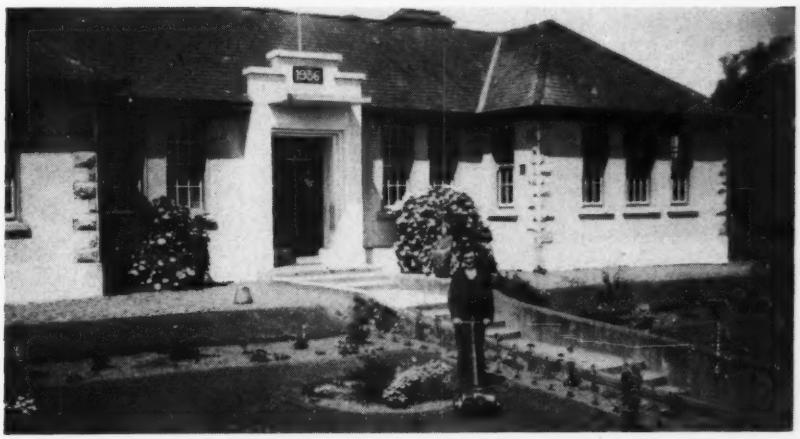
By Anthony F. O'Connor

Sore beset by wars, persecutions, and famines, Eire was late in experiencing the Industrial Revolution. Here is the tale of one of the pioneers in her 18-year-old system of vocational education. Written in the pleasant style of the Irishman who has always been a master of poetry and prose, it is a picture of the growth of the country's industrial-educational consciousness. Anthony F. O'Connor teaches at An Cheard-Sgoil (Technical School), Cill Orglan (Killorglin), County Kerry, Eire.

The author at the entrance to his four-room vocational school at Killorglin.

IRELAND'S troubled history no doubt gives the reason why vocational education in the strict sense simply did not exist here at the beginning of this century. Schools there were in plenty, but for children of from 4 to 14 only, and very far beyond the "three R's" they did not go.

Early in the century a fitful attempt was made to get technical education going, and, though ample funds were available, no great progress was made. The effects of the new departure were not felt beyond the city areas. The model was that of England, and the Irish system showed many of the weaknesses of its prototype. One thing, however, it did, and that was to give the people of Ireland a consciousness of the possibilities in technical or continuation education. So it helped to prepare the ground for the fuller and more comprehensive system which was established by the native government in 1930.



The modern vocational school at Killorglin. It has facilities for teaching domestic economy, rural science, drawing and craftwork, and academic subjects.

Gains Made Under the Free State

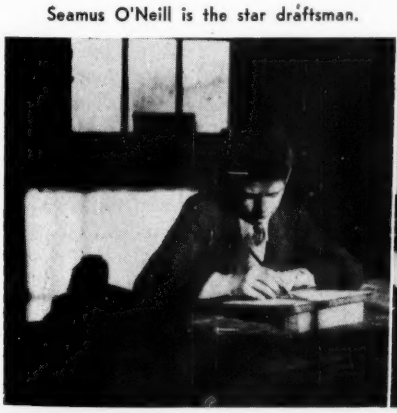
The Vocational Education Act of 1930 —as it is still called—opened a new era in Irish education, and made available to the masses of Irish people who had always been sadly neglected a well-planned scheme of vocational education for children from 14 onwards.

As Ireland is, in the main, an intensely agricultural country with comparatively little fully organized and developed industry, naturally the new scheme was planned with an eye to the furtherance of agriculture and allied pursuits. However, let it not be thought that education for industry was ignored in this scheme. Provision was made for trade classes in almost every facet of industrial life. In the bigger towns and cities there are classes for printers and pharmacists, electrical workers and foundry workers, sheetmetal workers, and any other trade you would care to mention, but that is, as I say, in the cities and big towns. How about the rural community?

Enter the Itinerant Instructor

Anyone who has been to Ireland—and who hasn't—knows that this is a country made up of rolling plains and lofty mountain ranges, of fertile valleys, small towns, and windswept bogs—and coastline almost everywhere. Scattered here and there are parishes of from a few hundred to a few thousand inhabitants. Here was a headache for the planners! How to bring vocational education to these scattered communities, for brought to them it must be. Irishmen, however, are seldom, if ever, short of a plan. The "plan" was forthcoming this time, too,

Seamus O'Neill is the star draftsman.



Seamus O'Sullivan at the lathe.

Sean Costello learns to use the mortise chisel.

and it took the form of the "itinerant instructor."

I was one, and what I didn't learn during my term of barnstorming around the rugged glens, mountains, and lakes of my native country! But that, as they say in this country, is another story. However, it was my job during those far-off days to take my blackboard and easel, my drawing equipment, woodworking materials, and my own few personal belongings, as well as a miscellaneous assortment of books, papers, registers, posters, maps, models, and what-haven't-you and take to the roads.

Of course, I had a plan of campaign but I set up my establishment wherever in rural Kerry I found a vacant garage, a tin shed, a tumbledown dance hall, or a back kitchen. There I opened my "school" and the young men from miles around thronged to my classes. Mud stained from the red fields they came, trudging along weary, mud-soaked boreens, as we call our narrow roads, into the comparative warmth and comfort of the tin shed. There we did our little best to make the Vocational Education Act work.

"Combination" Teaching

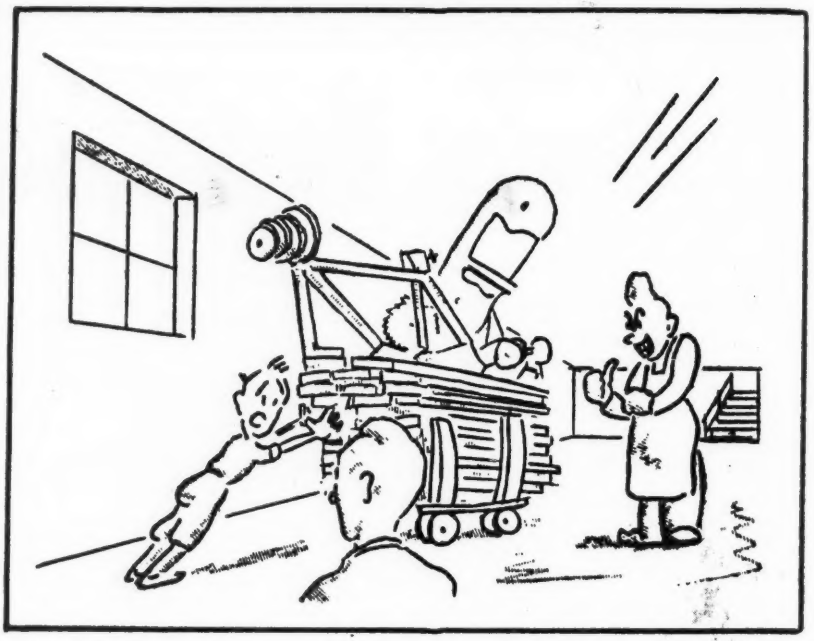
During the itinerant courses—they usually lasted from six to eight weeks or longer—I often taught woodwork, building construction, drawing, english [Editor's note to language purists: we know that there should be a capital "E" here, but remember that this is an article written by an Irishman.], mathematics, and, on occasion, history and geography! I was often surprised at the aptitude of the students and their ease of learning.

The "hobo instructor" was, so to speak, the pioneer of vocational education in Ireland. He worked under extreme difficulties, but I, for one, enjoyed the life, and I felt that I was really doing some good. And when, oftentimes, perched on an Irish hillside, looking out through a blurred window and contemplating the rural Irish scene with the moaning wind and the never-ending rain trickling down, pit-pat, from the eaves gutters, I thought of my compatriots in other countries working under ideal conditions in modern, well-equipped schools, I was not envious. Ireland is not like other countries; she has had a bad time down through the centuries, what with wars, persecutions, and famines; she has got no wealth; and, though one of the oldest, is she not at once one of the youngest countries of Europe? (We have had native government here only for the past 27 years and celebrated complete independence from Britain only last month.)

Leaders (?) in Industrial-Arts Education

By Marcus Fitzgerald

Special Teacher Dan



"He just said that if he *must* attend faculty meetings, he'll take along some real problems."

IT is obvious to Special Teacher Dan that his job is entirely different than the job of any other teacher in the school. The English teacher can carry his teaching equipment under his arm and so can the math and history teachers. Dan is responsible for $6000 worth of equipment. Other teachers need only to order a few books, pencils, paper, and chalk—Dan must keep an inventory of several hundred items. Other teachers have all the pupils in their classes—Dan gets only boys and "special" groups. Dan is frequently asked to repair the school projector or to replace a broken door panel—other teachers are rarely called on by the principal on such occasions of need. Classroom teachers wear suit coats with trousers that probably match. Dan wears a shop apron and he can, if he is careful, carry a small chew on the side of his mouth where three teeth are missing.

Dan has interpreted his observations to mean that he is a *special* teacher. A special teacher according to Dan should not be required to have a homeroom; he shouldn't be expected to attend faculty meetings; he should exercise his own option on being present for assemblies; curriculum studies or other group studies are outside his sphere. Dan refuses to regard the faculty as a team, with each teacher playing a different position but working toward a common end.

Modernization of Eire

But those days of happy-go-lucky itinerant barnstorming passed for me, and I was loth to see them go. A new spirit was growing up in Ireland. Beautiful new schools were springing up all over the country. In well populated country districts the "rural school" was replacing my back kitchen of other days. The drudgery was ending. Vocational education was spreading its wings, and the Act of 1930 was a success.

The new schools were well planned and comfortable, with commodious, well-heated and -lighted classrooms. Equipment was of the very best available. Here were usually four rooms—one each for domestic economy, rural science, drawing and craftwork, and for the usual school subjects. An office was provided, plumbing was installed, with hot and cold water in each room, and, in some cases, central heating. Attendance at these schools is voluntary, but there is never a scarcity of students.

A garden of about one acre is attached

to each school, and the rural science teacher sees to it that students get a good knowledge of practical agriculture as well as a thorough grounding in the theoretical side.

In the woodwork and craft section of the school, drawing and color work is taught, as well as educational woodwork. Farm accounting, languages, and mathematics complete the course which each attending student must take. The domestic economy department caters to the girls, and the aim is to train them to become competent and intelligent homemakers.

Two-Year Diploma Course

At the end of two years all students undergo a state examination and, if successful, they are awarded a state diploma which opens the way to them for well-paying positions.

There is still another activity, this one for adults. Night classes in a large variety of subjects are provided in each school. The most popular of these are woodworking, cookery, and needlework.

The County Vocational Education Structure

The schemes of vocational education are organized on a county basis. Each county scheme is administered by a committee which is voted in by the State Department [Editor's note: Presumably, the author means here the Eire equivalent of our Office of Education] and the County Council. The secretary of this committee is a civil servant and is appointed by the government. He acts as chief executive officer and is vested with the responsibility of developing the scheme to the fullest extent in his county.

Funds for the vocational-education program are provided by the state authority (*i.e.*, the national government) in the form of grants or loans, and by the County Council from the rates, or local taxes. Incidentally, the rate for vocational education in my county is at present approximately 3½ pence in the pound, or approximately seven or eight cents in your money. [Editor's note: This means that taxpayers in Mr. O'Connor's county, Kerry, in Eire are asked to pay approximately eight cents on each four dollars of assessed property valuation or two dollars a hundred to support the vocational education program.]

Students in daytime classes pay five shillings (approximately one dollar) in school fees for the year. Adults at the same classes pay a similar amount, so you will see that vocational education is within the range of the whole community.

(*Continued on page* 23)

Dramatize Molecules with This Visual Aid

by Fred A. Baer

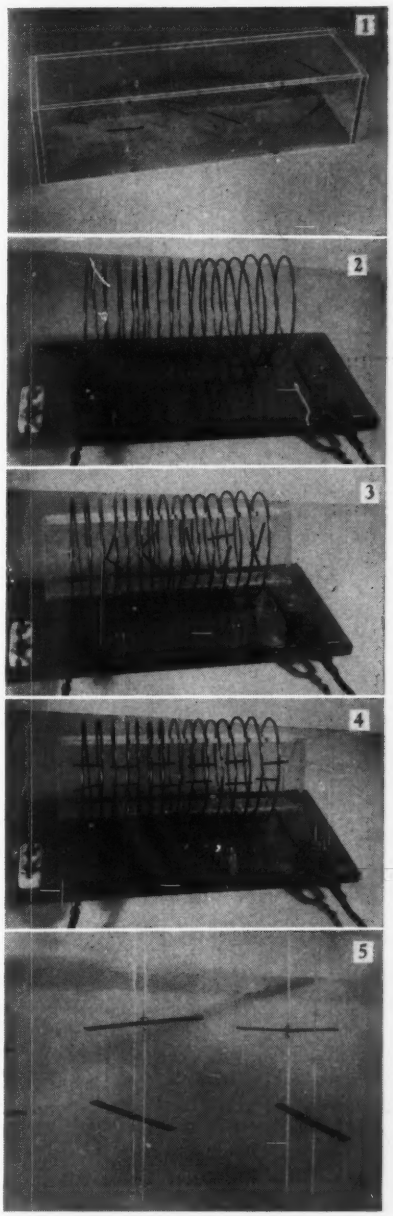
Here is a teaching device that can be made by students and will help greatly in the difficult task of demonstrating molecular action in classes in electricity. Fred A. Baer teaches electricity in the Bret Harte Junior High School, Los Angeles, California.

EXPLAINING the molecular theory of magnetism within solids, such as iron or steel, presents many problems to the electricity or science teacher. One particularly difficult point to present is that of explaining the changes which take place in the arrangement of molecules within a bar of steel when it becomes magnetized. The method described in this article is an attempt to help the teacher present the theory through a visual aid.

A bar of unmagnetized steel is represented by the plastic case (see figure 1). The strips of steel suspended in the plastic case represent the molecules of steel. Insert the plastic case in the coil (see figures 2 and 3). Current is then passed through the coil. This develops a magnetic field which causes all the strips of steel to turn so as to be in alignment with the poles of the coil. When the current is shut off, the "molecules" will disarrange themselves. A very heavy current from a six-volt storage battery is necessary to develop enough magnetic field about the coil to move the strips of steel suspended in the plastic case. The current should not be left on for more than a few seconds or the coil will overheat. A few seconds are sufficient to illustrate the alignment of molecules when steel is magnetized.

The case is made from ¼" plastic. One side is held on with brass screws. All other sides are permanently cemented in place. Holes are drilled in the top and bottom pieces for thread to pass through. Glass beads are used for bearings. The "molecules" are ⅛" wide strips of ribbon steel, 2" long, annealed and drilled, then strung on thread.

The glass bead bearings and thread are held in place with model airplane cement. The coil is made of #10 gage copper wire which can carry the heavy current and which is selfsupporting. A wooden base and a knife switch complete the teaching aid.

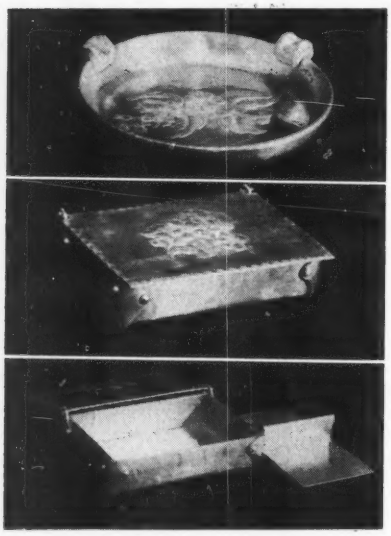


1. The plastic case with "molecules" inside.
2. The copper coil. Note knife switch.
3. Plastic case in coil. Current is off.
4. Current is on. Molecules are "aligned."
5. A close-up view of beads and steel strips.

Planning Issues Still Available

A NUMBER of orders have come in for extra copies of the April Planning and Directory issue of SCHOOL SHOP, but copies are still obtainable. Excellent for school board members and students in training. Order at 50 cents per copy from the Circulation Department, SCHOOL SHOP, 330 S. State St., Ann Arbor, Michigan.

Ashtray and Case Make a Good Team



Top—The ashtray with two rests and raised design.
Middle—The completed box. Lid extension is about 1/6".
Bottom—The box open to show partition and lift piece.

By Simon S. Palestrant

Roosevelt High School,
New York City

A NUMBER of operations and basic skills are called into use in the creation of this cigarette box and ashtray combination in aluminum. In addition to the craftwork which must be mastered in order to make the project attractive, there is the extra skill with which the young craftsman creates the "family resemblance" necessary to make a set of anything. As will be seen in the accompanying photo, the artwork used on both the box and the ashtray cause them to appear to "belong" to each other.

This working to achieve a similarity of appearance in two distinct objects constitutes a worthwhile educational experience. It should give the student an insight into the problems of industrial production wherein sets of various materials are produced by different workers in a plant.

The ashtray is made from a 6" disc which has been hammered into a prehollowed form. Allow the marks of the planishing hammer to remain. This will create an interesting textural effect. The edges might be tapped lightly to accent the hammered effect.

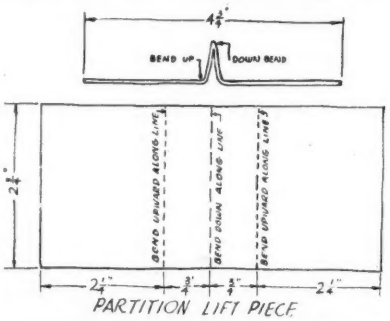
A raised design can be achieved by placing the tray face down on a steel engraving. These are available among the discarded blocks in any large engraving or printing shop. The back surface of the aluminum is tapped firmly with a bell-shaped planishing or ball-peen hammer to bring out the design. create the same interesting and unifying textural effect.

The cigarette lift is made of a much lighter gage metal than is the body. It is bent so that it has a vertical rise for a finger grip.

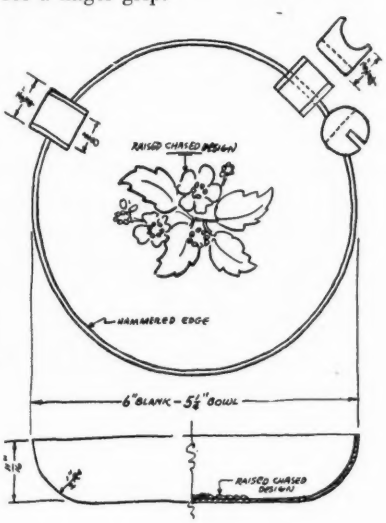
The cigarette rests are made of a small section of 3/4" aluminum bar. A round file (3/8" size) will achieve a groove wide enough for a cigarette. A wide hacksaw cut along the opposite surface and at right angles to the slot makes it possible to fit the grooved rest on the tray. If lightly tapped, this slot can be pinched lightly to the lip itself. Place two or three rests around the circumference as desired.

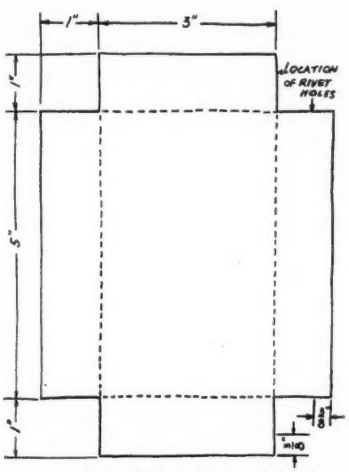
The cigarette box is cut in the form of a cross (see drawing). It is bent upward to form the box. Corner plates are riveted on, the front ones flush to the box ledge, the back ones having a raised section. These have holes drilled through to which an extension flange of the lid is fitted before the corner plates are fastened in place.

The lid is simply a flat piece of metal, large enough to extend about 1/6" beyond the limits of the box. The decorative unit on the lid may be raised as was the design on the tray. Planishing the surface and the exposed edges will

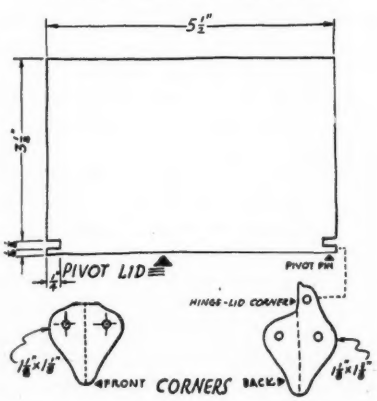


PARTITION LIFT PIECE





PATTERN FOR BOTTOM OF BOX



PATTERNS FOR BOX-LID & CORNERS

IN THE Morning Mail...

[Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Michigan.

Gentlemen: The April issue of SCHOOL SHOP has just been received. It contains a wealth of excellent material. . . .

Professor H. H. London,
University of Missouri

Gentlemen: Our class in Equipment and Management makes a great deal of use of SCHOOL SHOP. We found the April, 1949, issue especially useful and interesting. . . .

Donald D. Schaal,
State Teachers College,
Platteville, Wisconsin

Gentlemen: SCHOOL SHOP is getting better and better. . . .

Earl L. Bedell, Director,
Technical and Trade Schools,
Detroit, Michigan

NEWS

What's Doing in the Field of INDUSTRIAL EDUCATION

Drafting Group

SEVERAL hundred members of the Mechanical Drawing Association of New England met at Massachusetts Institute of Technology, Cambridge, late in March. Principal speakers were Col. Walter E. Sewell, office of the Army Chief of Staff, who spoke on the Army education program, especially drawing, and John R. Holmes, director of drafting training, Chrysler Corporation, Detroit, who spoke on the tailoring of drafting and mechanical courses to fit the needs of industry.

GVA to Gather

THE second annual state conference of the Georgia Vocational Association will be held in Macon on June 9 and 10. It is anticipated that more than 1500 educators will gather at the Macon Municipal Auditorium.

State Associations to Confer

SIX New England states will be represented at a two-day convention of state vocational associations in Springfield, Mass., May 13 and 14. Most trade and vocational schools in the six-state area will be closed on the first day of the conference and a large attendance of vocational teachers is expected.

Annual Conference

PRESSMEN'S HOME, Tenn. (you will remember its picture on the cover of the April SCHOOL SHOP Planning and Directory issue on your desk), will be the scene of the 24th annual conference on printing education of the National Graphic Arts Education Association, June 20 to 23. The program will consist of forums on courses of study, the composing room, presswork, and offset lithography. Many leading names in the graphic arts industries will be featured as speakers and forum leaders.

Scholastic Awards

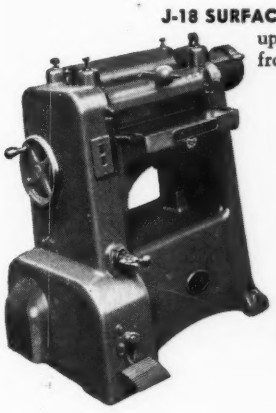
JUNE 20 is the deadline for entering projects in the industrial arts award program sponsored by Scholastic Magazines, Inc. Industrial arts and vocational teachers may submit work of their students in six divisions of the competition. The divisions are wood, drawing, metal, machine shop, plastics, and radio-electronics. Rules booklets may be procured from George H. Fern, Director, Scholastic Industrial Arts Awards, 7 East 12th St., N. Y. 3, N. Y.

Michigan Workshop

A WORKSHOP in vocational education will be conducted at the University of Michigan, Ann Arbor, from June 27 to July 8 and from July 11 to July 22. Offered by the School of Education of the University in cooperation with the State Department of Vocational Education, the two-part summer session program will enable those attending to discuss with outstanding leaders in the field the problems relating to the organization and development of vocational curriculums on a high-school and post-high-school level. Detailed information may be obtained from A. A. Vezzani, Lecturer in Vocational Education, Department of Vocational Education, Rm. 4200C, University High School, Ann Arbor, Mich.

Purdue Program

TWO workshops, each carrying two hours credit, will be held at Purdue University this summer. The first, from July 25 to August 6, will be for persons interested in curriculum organization, development of courses of study, or securing assistance in analysis of instructional materials. The second, August 8 to 20, will be open to trade and industrial coordinators and others interested in the coordination problems.



J-18 SURFACER Surfaces stock up to 18" wide and from 1/8" to 6" thick.

J-25 TILTING ARBOR SAW Cuts stock up to 3¼" thick. Cut-off capacity 17" without extensions... 25" with front table extensions.

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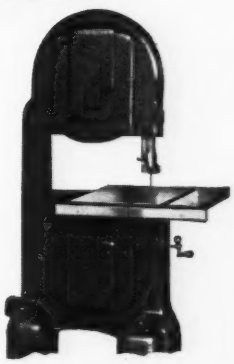
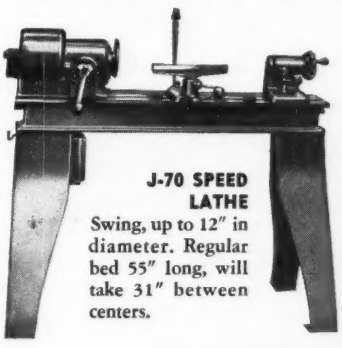
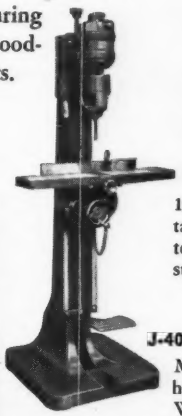


J-14 BAND SAW 16" scroll band saw. 18"x 18" table tilts 45° to right and 5° to left at saw line. Handles stock 8" high under guard.



J-70 SPEED LATHE Swing, up to 12" in diameter. Regular bed 55" long, will take 31" between centers.



J-40 MORTISER Mortises up to ½" in soft or hard wood. Can take up to 21". Will work to center of stock 8½" wide.

For complete information on any machine in the J-Line write Dept. SS-6.

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School Shop KINKS

Payment will be made for each Kink published. Send to Editor, School Shop, Ann Arbor, Mich.

Sawing Trick

My father, who was my "teacher" when I learned the carpentry trade, used to contest with his fellow-workers in sawing the most accurate 45° or 90° cut by guess on a 12" board. He won almost every time because, while they looked at the board only in their angle guessing, he would look mainly at the reflection of the board's edge in the shiny blade of the saw. The board would be in line for a 90° cut and at right angles for a 45° cut. I find that it is a good teaching device in woodworking and carpentry classes.—*Stan Schirmacher, Cottonwood, Ariz., High School.*

Use for Surplus Bins

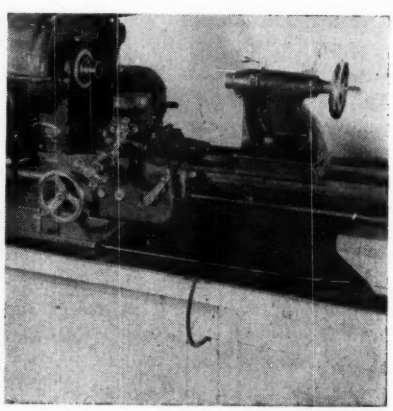
Surplus army bins may be converted easily into chests of drawers for storage of project material and other supplies. The individual bin may be cut to fit available space and drawers fitted to the openings. The openings are of equal size which affords opportunity for a small-scale lesson in mass-production methods. It may also be used in a machine woodworking class to introduce basic machine operations.—*J. James Roach, Central Junior High School, Riverside, Calif.*

End Slide Slip-Ups

Shop teachers who take great pride in their 2" x 2" slide collections get understandably "sore" if their pet slides appear upside-down when a student is operating the projector. Here is a tip for dark-proofing them. Clip a small section from the upper-right hand corner. Punch a small hole in the middle of the top edge. It will then be possible for an operator to tell instantly by feel when the slide is not going in the projector in the correct position. Be sure all slides are punched and cut in the same manner; otherwise the dark-proofing will only add to the confusion.—*Earl Marihart, Jefferson Junior High School, Dubuque, Iowa.*

Machine Lock

Lathes and other machine tools are rather difficult to lock up. Most instructors depend on locking up accessories in order to prevent tampering. The pictured kink is an effective method of preventing machine tools from being run in the instructor's absence. Simply notch



the top of the bench drawer and lock the plug on the electric cord inside.—*M. C. Anderson, Globe, Ariz.*

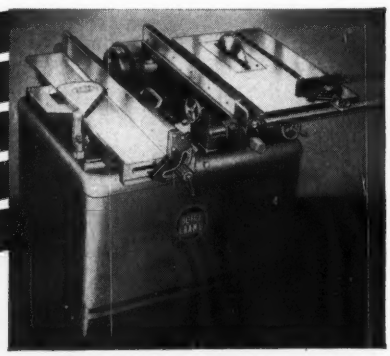
Bits from Icepicks

The bits usually used with hand drills are often easily broken. Icepicks are made from tough steel. They make excellent bits when flattened and sharpened for proper clearance.—*I. Broder, P.S. 241, Brooklyn, N.Y.*

ONLY BOICE-CRANE MAKES THIS POPULAR "COMPLETE WORKSHOP" WHICH INCLUDES A TILTING ARBOR SAW

IT CUTS—MITRES—PLANES—RABBETS AND GROOVES

THE BOICE-CRANE SAW-JOINTER



Compactly combines, on a portable welded steel cabinet stand, a 10" tilting arbor saw and a 6" jointer, driven by one, rather than two motors. (Imitators only tilt their tables—not the blade.) A unique drive permits mounting the motor rigidly and separate from the machine. Both machines can be used simultaneously. The longer table and fence guarantees perfect work on longer stock than usually handled on 6" jointers. The jointer planes or rabbets ½" deep. The saw cuts stock up to 3" thick, and rips up to 21" wide with standard bars for fence (or to 37" wide with No. 2537 bars, at slight extra cost). A hinged door is provided for cleaning out the saw dust and shavings which are collected in the stand.

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Now students can sharpen hand tools without danger of damage to tools or personal injury. Simplified self-adjusting friction roll drive. Peripheral speed remains constant as wheel wears. No water thrown on operator. Permits proper pressure control. Operator takes a comfortable standing position and works on top of the wheel. Large tool rest, the first with adequate adjustment.

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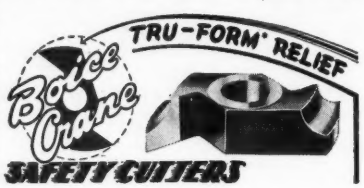
- Designed for ready adaptability to a wide range of projects, fewer machines are needed to fill all your requirements.
- As nearly 100% safe as modern devices permit.
- Of just the right size for school shops, they permit more efficient shop layouts than larger equipment.
- Durably constructed, they can take a beating which would incapacitate most machines.

First correctly made milled-to-pattern shaper cutters at moderate prices. Real production-type two-wing cutters with the advantages of costlier CIRCULAR or INVOLUTE* relief. This new principle machines the shape into the cutter on an arc that assures clean cutting without burning. Safer than knives. Cut the same true original shape and dimensions, right up to the last sharpening. Larger rake, or cutting angle, shears or shaves, doesn't scrape. Up to 50% more usable life. Adequate initial clearance angle for higher spindle speeds, which never changes when properly sharpened. Result—faster cutting, more production, cleaner cuts. More metal behind cutting edge, reduces chipping, crumbling, under heavy cuts; dissipates heat faster on high speed shaping. Fine, tungsten tool steel. Deep hardened and oil tempered. Precision formed. Razor sharp. Authentic, full-sized commercial shapes. Average 3¼" diameter for higher peripheral speed. Designed for the rugged Boice-Crane shaper, but improves performance of all other makes.

(*Also called flattened-arc relief: cam-profiled relief.)



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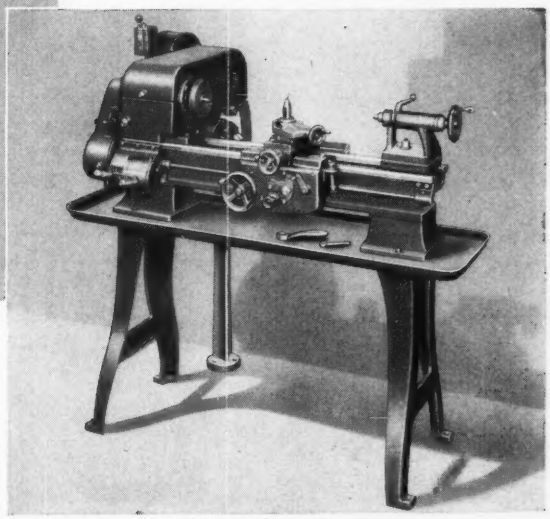
11-inch SWING Logan LATHES

FOR THE SCHOOL SHOP

Available in Bench, Floor, Cabinet and Turret Models



Logan 11" Floor Lathe. Quick Change Gears, 1" Collet Capacity, 1⅜" Spindle Hole, 24" and 36" Between Centers

Designed and built for industrial use, these 11" Logan Lathes equip the school shop for a wide range of projects that keep student interest at a high level and provide a broad and thorough training.

They Have CAPACITY...

1" collet capacity, 1⅜" spindle hole, and center distances of 24" and 36" are indicative of the capacity for larger work these 11" swing lathes offer.

They're ACCURATE...

Precision preloaded ball bearing mounting assures sustained accuracy at any spindle speed from 45 to 1500 rpm. The two V-ways and two flat ways of their rugged beds are precision ground to a tolerance of .0005" along the lineal capacity of the lathe.

They're SAFE...

To protect inexperienced student operators, the countershaft, back gears, headstock, change gears and motor drive belts of these 11" lathes are all completely enclosed, yet easily accessible.

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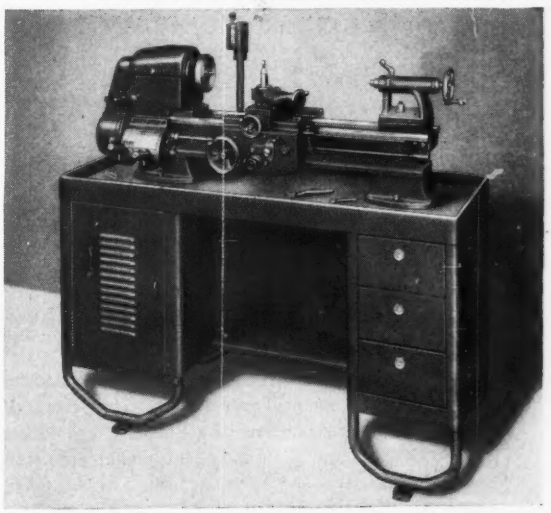
They're A SOUND INVESTMENT...

We know of no other lathe which offers the student and the school so much in accuracy and versatility for the price that Logan production efficiency makes possible.



Logan 11" Cabinet Lathe. Quick Change Gears, 1" Collet Capacity, 1⅜" Spindle Hole, 24" and 36" Between Centers

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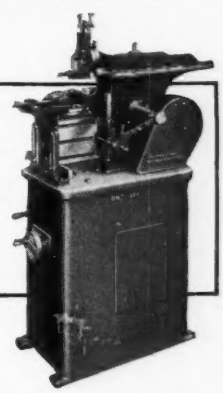


LOOK TO Logan FOR *BETTER* LATHES AND SHAPERS

Teaching Tools

POINTERS ON INSTRUCTION and SHOP ADMINISTRATION

By John F. Nowak

Accident Reporting

A SUBJECT which does not receive nearly the attention in school shops that it should is the one of procedures in case of accident. It is usually overlooked until a serious accident occurs. It is usually left out of on-the-job indoctrination of new teachers.

School circulars covering a variety of topics are used in most institutions to make known general practices and procedures to the faculty. They are prepared and circularized as the need arises. It is more than likely that in your school the subject of accidents and how to report them has been covered in an administrative circular.

If you have been fortunate thus far in conducting a shop activity without accident (except the inevitable minor skin rubs), refer again to your school circular which outlines the procedures to be followed when a student is injured. For the most part, information given therein will be similar to the following:

1. When an accident occurs, notify by messenger the medical office and the administrative assistant's or principal's office (or whatever control points are indicated in the school circular on accident reporting) as soon as the seriousness of the accident is determined.

2. Pending the arrival of a qualified person, use first-aid measures to curb or stop bleeding. (Note: It is inadvisable for the shop teacher to treat an injured person. The danger of administering an overdose of iodine, neglecting the shock factor, moving a person with a bone injury, etc., cannot be exaggerated.) Shop teachers should qualify for first-aid certificates. This is mandatory in some systems. A knowledge of pressure points on the human body is very important.

3. After the injured student has been treated by a properly qualified person, the teacher should obtain written statements from students who witnessed the accident. Each such deposition should be made on an individual paper, in the student's own handwriting, and attested to with his own signature.

4. The teacher makes out a regular accident report, giving full details of the events leading to the accident, its causes, nature of the injury, etc.

5. When and if able to do so, the injured student must write or dictate a statement of his own, explaining the accident.

6. The teacher then submits the entire set of papers—his record of the accident, statements by witnesses, and a statement by the injured—to the principal, administrative assistant, or other authority designated by the principal in the school circular on accident reporting.

All above steps should be taken by the end of the school day on which the accident occurs.

Questions and Answers

Q. The academic subject marking system, i.e., 60, 65, 70, etc., does not seem appropriate to me for shopwork. What other marking system do you suggest? (E.B.)

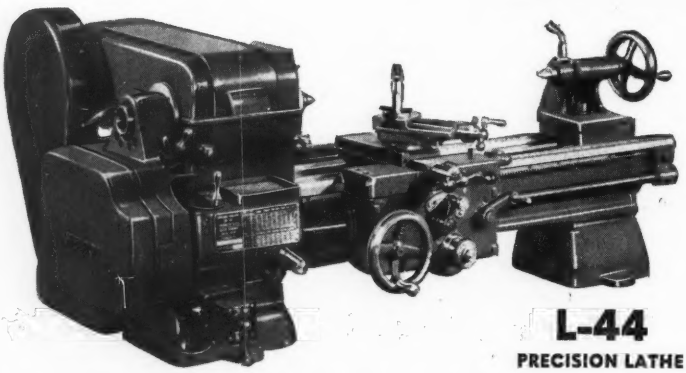
A. Many vocational schools use just three letters to rate students in shopwork: E (excellent, S (satisfactory), and U (unsatisfactory).

Question Box

As a complement to this department, readers are invited to send in questions which relate to methods of teaching shopwork. If a personal reply is desired, include a stamped, selfaddressed envelope. Send questions to:

John F. Nowak
Postoffice Box 869
Church Street Station
New York 8, N.Y.

SHELDON
PRECISION LATHES



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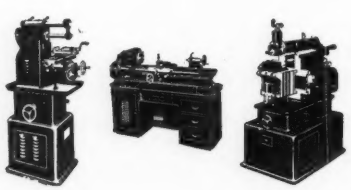
IF HANDICAPPED FOR SPACE OR FUNDS
this smaller SHELDON will give maximum shop capacity

If you are faced by space limitations or size of appropriation, you can still give a practical course in lathe operation. Smaller, less expensive, the Sheldon L-44 lathes still are of standard industrial type, capacity, and precision.

They have 10⅞" swing, ¾" collet capacity, large industrial type Timken Taper Roller Bearing, and a sturdy 44" bed that is held to .0005" tolerances of parallel and longitudinal alignment. They have standard industrial controls, full quick change gears and a completely enclosed motor drive—yet cost only $472.00.

Write for Sheldon Machine Tool and Accessory Catalog or send 75c for Sheldon's simplified beginners text, "Care and Operation of the Lathe."



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Home Craft Sets are supplied either in the steel case illustrated or mounted on a panel which can be hung beside the lathe.

WILLIAMS *Home Craft* TOOL HOLDERS

● This set of tool holders provides for all regular lathe operations and is ideal for school shop use on lathes from 7 to 10″ swing. Drop-forged from tough steel, accurately machined and specially heat-treated, these holders represent the same fine quality as the Williams industrial line. The high-speed steel cutters furnished, are ground, ready for use except those for turning. The "diamond-point" turning cutters require only a minimum of grinding to desired form. Sold by Industrial Distributors everywhere. Write Dept. S-549 for descriptive literature.

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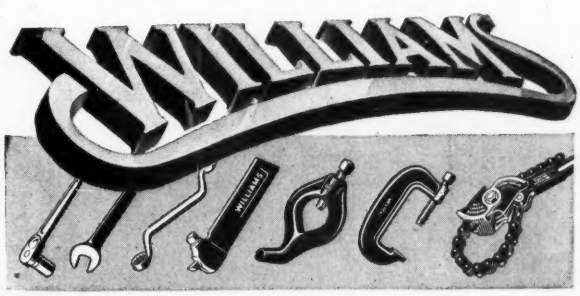

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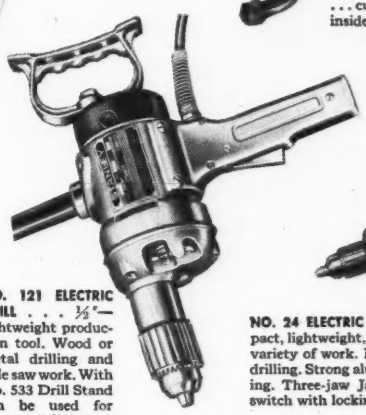

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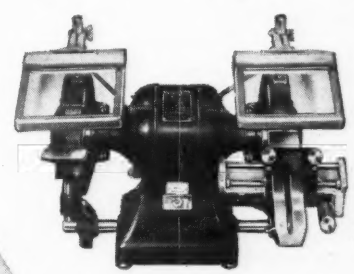

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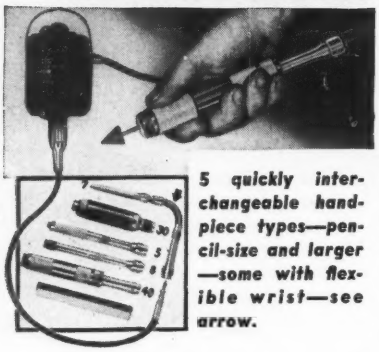

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Portable Tool Rack

By R. Paul Lightle

James H. Smart School, Fort Wayne, Ind.

TESTED 55 PROJECT

MOST of us who have toolrooms have watched the congestion around that room at the beginning and end of each period. Here is the way the problem has been eliminated in our shop.

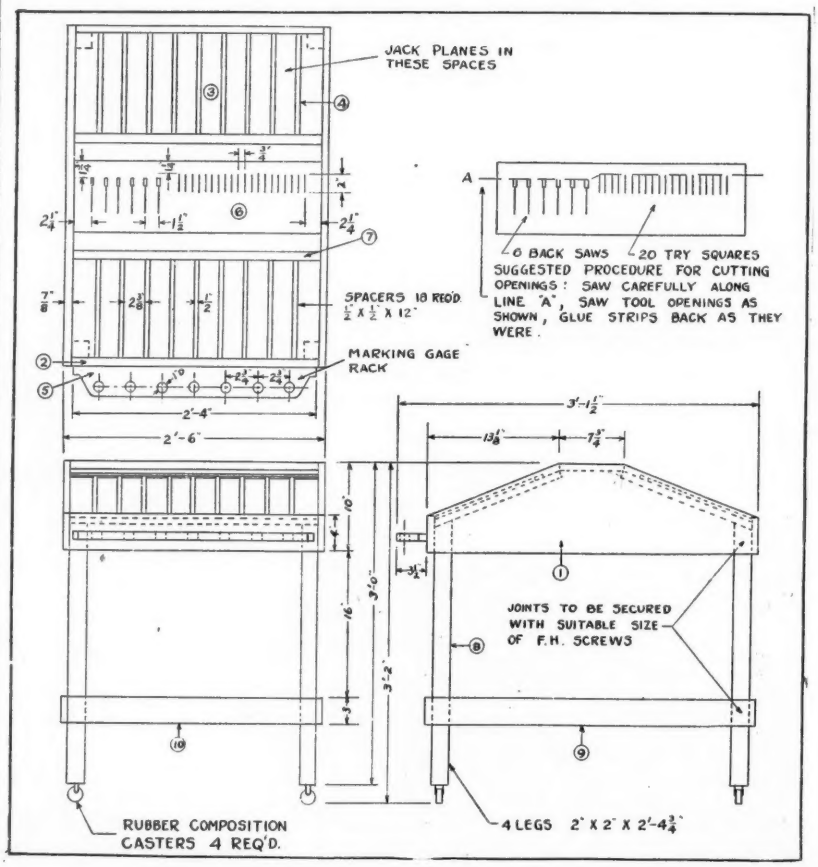
The tools used most frequently are placed on a portable tool rack. At the beginning of the hour the rack is wheeled out into the shop. All planes are numbered to correspond to similar work stations. Each pupil is responsible for the care of his plane. This is a junior-high-school shop so the instructor grinds the plane iron and the boy finishes the sharpening process on the oilstone. Each tool is taken from the rack as needed.

If your classes are not large enough to require 20 planes, as in our situation, the space may be utilized for other tools. Our rack has been in use for three years and has justified the few hours time used in its construction many times over.

Use any wood suitable for its construction. Our rack was finished with stain, shellac, and varnish. Be sure the casters used are heavy enough to withstand the weight and of rubber composition in order to eliminate noise.

Bill of Materials

Part No.	No. Reqd.	Size
1	2	7/8" x 10" x 2'-10"
2	2	7/8" x 4" x 2'-4¼"
3	2	7/8" x 16" approx. x 2'-4¼"
4	18	½" x ½" x 12"
5	1	7/8" x 3½" x 2'-4"
6	1	7/8" x 7¾" x 2'-4¼"
7	2	¼" x 1" x 2'-4¼"
8	4	2" x 2" x 2'-4¾"
9	2	7/8" x 3" x 2'-10"
10	2	7/8" x 3" x 2'-6"


JACK PLANES IN THESE SPACES
6 BACK SAWS
20 TRY SQUARES
SUGGESTED PROCEDURE FOR CUTTING OPENINGS: SAW CAREFULLY ALONG LINE "A", SAW TOOL OPENINGS AS SHOWN, GLUE STRIPS BACK AS THEY WERE.
SPACERS 18 REQD. ½" X ½" X 12"
MARKING GAGE RACK
2'-4"
2'-6"
3'-1½"
13⅛"
7⅞"
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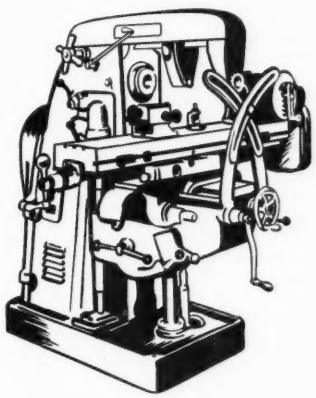

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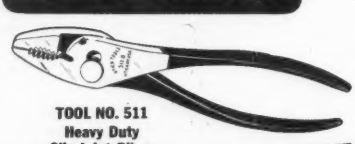

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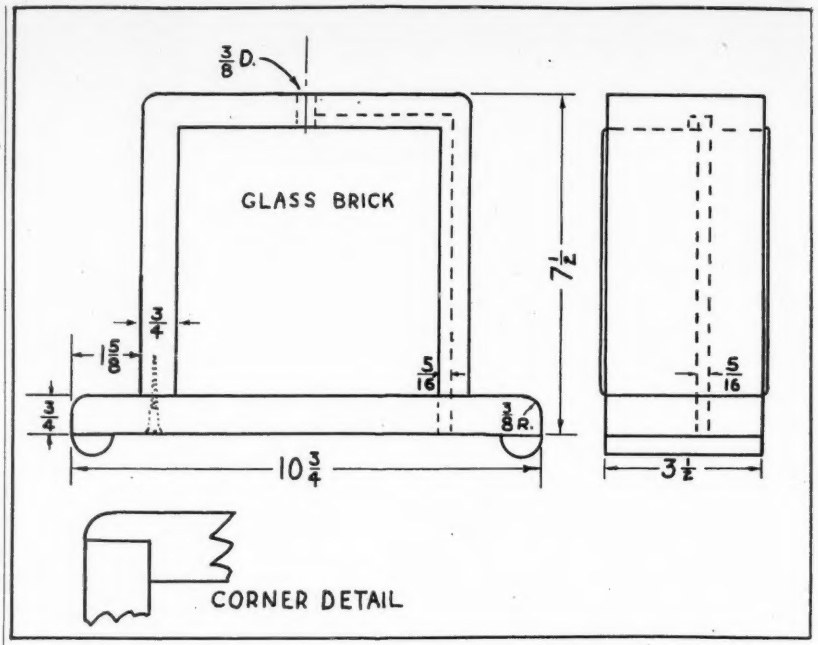


Make a Table Lamp with Glass Bricks

By James B. Lidstone

Edward Devotion School,
Brookline, Massachusetts

TESTED 55 PROJECT

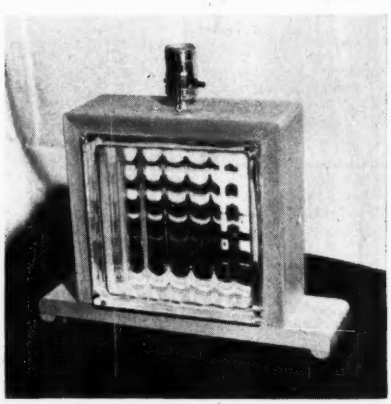
STUDENTS in higher elementary and junior-high classes should find this project appealing. An added recommendation for it is that it can be used as an introduction to power-tool operation or as a project involving only the use of hand tools. In either case, it is likely to provide good shop experiences for young pupils and will offer them a chance to make a handsome home object.

Glass bricks, which are necessary to this lamp, should be obtained from a glass company, a supplier of building materials, or a contractor. The bricks come in several sizes; the one called for here is 6" x 6".

Steps in the production of the glass brick lamp:

1. From the drawing make a stock list so that materials can be assembled.
2. Make base, sides, and top, in this order, to finished size.
3. Bore holes in top and base. Lay out and plow grooves for wires in sides and tops.
4. Lay out and cut shoulder joint as shown in drawing detail.
5. Round corners and sand.
6. Assemble shoulder joint with brads and glue.
7. Assemble base to sides, using 1½" flat-head screws. Do not use any glue.
8. Glue and brad half-round molding to base.
9. Shellac interior of lamp.
10. Run lamp cord through base, sides, and top.
11. Remove base, apply plaster of paris to sides of glass brick, and assemble base to sides again. Clean off surplus cement before it can harden.
12. Sandpaper and apply finish.
13. Complete wiring.

The completed lamp. Without wires and socket this project could be made into bookends.



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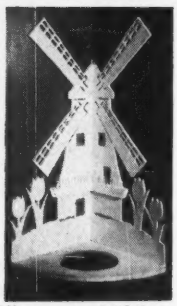

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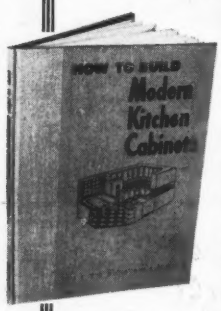

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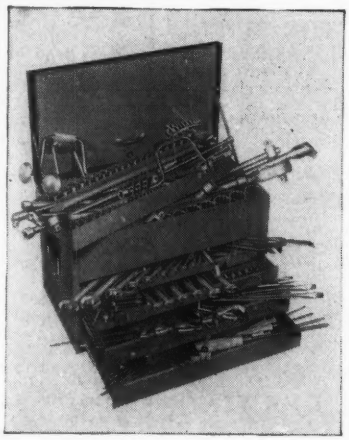
Williams "Superchest" No. 2001



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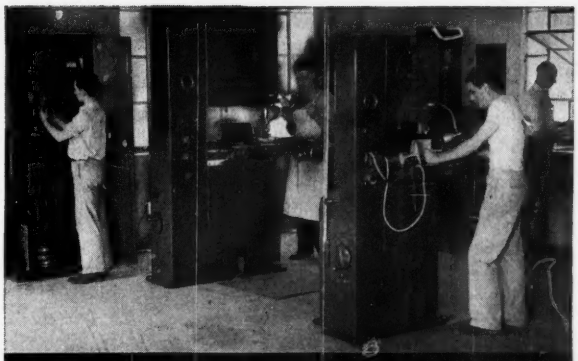

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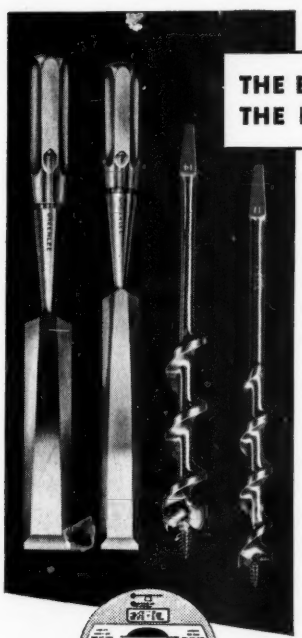

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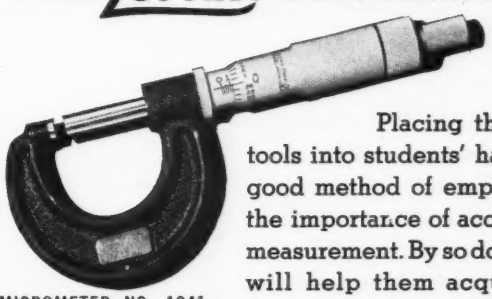

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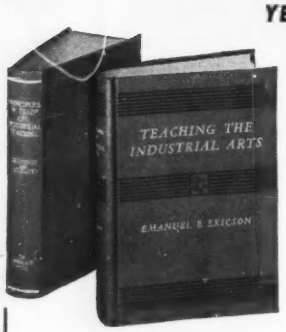

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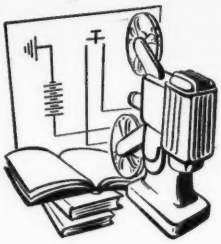


Books:

An Analysis of Drafting for Teachers. Kepler, et al. Boston, Mass.: D. C. Heath and Co., 1948. Pp. v+154. $1.50.

A book for use in planning courses and in standardizing drafting practices, this work was prepared by a committee composed of men from the Michigan Industrial Education Society of wide experience in the field of drafting and design. The topics are all presented in outline form and are in simple language. Divisions of the book are: List of Operations, Analysis of Operations, Technical Information, General Information, and Guidance and Educational Values. The last is a short outline of drafting as an occupation and of its value and place in society. Appendices include an analysis chart, the complete *American Standard, Drawings and Drafting Room Practice* tables, and a bibliography.

The Related Mathematics Series, consisting of: **Mathematics for Automobile Trades** (Pp. vii+97. $1.25); **Mathematics for Carpentry Trades** (Pp. xiii+115. $1.40); **Mathematics for Electrical Trades** (Pp. viii+88. $1.25); **Mathematics for Masonry Trades** (Pp. vi+74. $1.25); **Mathematics for Painting Trades** (Pp. xiii+67. $1.25), and **Mathematics for Plumbing Trades** (Pp. xi+101. $1.30). Albany, N. Y.: Delmar Publishers, 1948.

These are six of the nine Delmar publications covering mathematics in apprenticeable fields. Problem material in each is arranged from the simple to the complex. Answer books are available for all six.

Forty Power Tools You Can Make. Compiled by the Editors of Popular Mechanics Magazine. Chicago, Ill.: Popular Mechanics Press, 1948. Pp. 96. $1.50.

The 1948 edition of this compilation of articles on making power workshop machines has a wide assortment of diagramed projects. Forty separate machines are outlined and tips on construction with old pipe fittings, auto parts, scrap wood, etc., are given.

Projects in Woodwork. J. H. Douglass and R. H. Roberts. Bloomington, Ill.: McKnight and McKnight, 1948. Pp. 135. $3.50.

Woodworking and cabinetmaking projects found in this volume have the double attraction of being challenging to the shop student and of use in his home when completed. Project material ranges from beds to vanity dressers and from bookends to tie racks. There are large, readable drawings and clear photos.

J. H. Douglass is Director of Industrial Arts and Vocational Education in the Junior-Senior High School, Winfield, Kas.; and the late R. H. Roberts was Director of Industrial Arts and Vocational Education in the Tulsa, Okla., public schools.

Molybdenum—Steels, Irons, Alloys. Archer, et al. New York: Climax Molybdenum Co., 1948. Pp. 391.

This is a book designed to present a guide for the choice and use of materials in metal work. Its aim is to overcome the shortcomings of many works of other authors which were confined to the presentation of uncorrelated data on specific compositions. Herein an attempt is made to show the similarities and dissimilarities of various materials and to show what factors affect choice of material for specific parts. The information is up-to-date and there are many charts and tables to aid in interpreting the textual material.

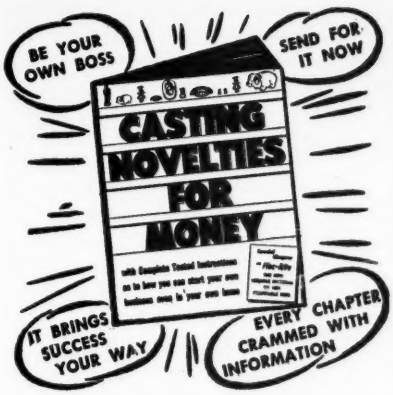
Industrial Arts Design. Varnum. Peoria, Illinois: Manual Arts Press, 1948. Pp. 248. $4.50.

A textbook for students, teachers, and craftsmen, this work was prepared to illustrate how the principles of general design may be applied to specific materials and to problems of teaching. There is a minimum of theory and the major emphasis is on "rules and conclusions that shall be applicable to typical materials in common use in the schools and industry." Chapters I through V deal with the elementary problems confronting the designer as he begins the first steps on his working drawing; chapters VI to VIII show the methods by which he may express his individuality through contour or outline enrichment, while chapters IX to XVII explain the treatment of the most difficult form of decoration, that of surface enrichment. William H. Varnum was formerly Professor of Art Education, University of Wisconsin.

Refrigeration Serviceman's Manual. Edward R. Magnus and Grace D. Marlott. Chicago, Ill.: Wilcox and Follett Co., 1948. Pp. xvi+688. $5.00.

Both on-the-job and shop servicing are covered in this book for the refrigerator repairman. Topics are divided into refrigeration theory, major service operations, minor service operations, shop operations, and, in the last section, sealed refrigeration units and absorption system refrigerators. There are 139 drawings and 21 tables.

Edward R. Magnus is a professional engineer and Grace D. Marlott is a teacher of journalism at Washington University, St. Louis, Mo.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Weaving You Can Do. Edith L. Allen. Peoria, Ill.: Manual Arts Press, 1947. Pp. 118. $2.50.

This is a book about that type of weaving which is done on a frame. It is designed to answer the questions of anyone who wishes to know how to get started with hand weaving. It gives directions for setting up looms, for weaving in the more complex forms, for making tapestries, and for reading patterns.

Edith L. Allen has also written a book on rug-making.

Swope's Lessons in Practical Electricity (eighteenth edition, revised by Erich Hausmann). New York: D. Van Nostrand Co., Inc., 1948. Pp. v+769. $4.80.

Modernized in keeping with the recent great advances in electrical engineering, this book contains a thorough treatment of fundamental electricity. The latest terms are explained and the most recent processes are detailed. There are questions and problems at chapter ends.

Pamphlets:

Apprentice Related Instruction Bulletins are manuals of suggested procedures for administrators, supervisors, and teachers which are prepared by the curriculum committee of the Indiana Council of Local Administrators of Vocational Education and Practical Arts. They are issued in two series. The first series includes these titles: (1) *Machinist,* (2) *Toolmaker,* (3) *Millwright,* (4) *Tool Designer,* (5) *Maintenance Electrician,* (6) *Draftsman,* (7) *Auto Mechanics,* (8) *Carpenter,* (9) *Plumber,* (10) *Painter and Decorator,* (11) *Bricklayer,* (13) *Wood Patternmaker,* (14) *Plasterer,* and (15) *Sheet Metal Worker.* Series "B" includes (1) *Cleaner and Spotter,* (2) *Stone Cutter,* (3) *Meat Cutter.* Price of individual manuals is 75c. All correspondence should be addressed to: The Indiana Apprentice Curriculum Committee, Prof. Ammon Swope, Secretary, Room 209, Education Bldg., Purdue University, West Lafayette, Ind.

Our Air Age—A General High School Course on Aviation appears in paper-bound form and is prepared by the staff of the Bureau of Aviation Education, California State Department of Education, Sacramento. Unit I is *Community Problems and Aviation,* II is *Aircraft Structures and Problems of Flight,* III is *Navigation and Meteorology for Air World Geography,* IV is *Vocational Problems and Aviation,* and V is *National and International Aspects of Aviation.*

Visuals:

This Gracious Heritage is a 20-minute sound motion picture produced for the Gorham Co., Providence, R. I., by RKO Pathe's Commercial Film and Television department. It portrays the evolution of the design and craftsmanship of sterling silver. Distribution is handled by the Modern Talking Picture Service, 9 Rockefeller Plaza, N.Y. 20, N.Y.

Eight Art Cards on Aluminum are designed so that they may be hung on class or shop walls. They picture the history, manufacture, and use of aluminum. Suitable for science and metal classes, they may be obtained from the Aluminum Company of America, 801 Gulf Bldg., Pittsburgh 19, Pa. Preference will be given to teachers who write on school letterheads or use school addresses. Specify number desired. Size is 16" x 20", in color.

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Washington . . . . *from page 24*

so employed regardless of whether the veterans' program existed or not. Thus, no part of the superintendent's salary, the principal's salary, or the salaries of persons normally assigned to them as clerical assistants can be charged to the VA. The cost of administrative supplies used in connection with the veterans program is chargeable to VA.

A Weak Office of Education. — Mr. Herbert Hoover, his commission, his task forces, and his recommendations on what to do about federal government reorganization will be discussed during the next ten years. And Congress will be doing well if it enacts one-third of the proposals within that time.

Mr. Hoover's ideas on education can be summed up in one sentence: He wants a weak U. S. Office of Education, with the government's vast activities in education scattered just about as they are although he'd like to see the Office placed in a Department of Welfare where policies could be "coordinated and unified."

Mr. Hoover takes pains to notice, however, that there has been vigorous "promotion by the government of curriculums in highly specialized fields, while the general curricular needs of the country have been neglected."

This is a direct reference to two pointed questions his task force on education asked in its report, as written by a scholar from Claremont, California, Hollis P. Allen.

Dr. Allen notes the "serious criticism that the U. S. government has been interested in the promotion only of highly specialized fields (meaning primarily vocational education) within the curriculum." He asks: "Is it appropriate that the federal government should extend its substantial influence on curriculum only in the promotion of these few highly specialized areas? Can the government afford to be placed in the position of lending its prestige to these few areas while neglecting the total curricular needs of the country?"

Dr. Allen also notes that the auditing of federal vocational funds in the states was transferred from Office of Education agents to Federal Security Agency offices. He suggests, very weakly, that it might be well to return this function to the Office of Education. He says: "The audit must be in terms of both fiscal and educational program factors. The Office of Education has responsibility for the administration of the vocational education program in cooperation with the states. It has a 'know-how' in dealing with state educational agencies. It has the staff for evaluation of educational programs. It is doubtful whether administrative responsibility and audit responsibility for a professional program of this type can be separated at the federal level (that is, between the Federal Security Agency and the Office of Education). It is even more dubious whether the best educational interests of the government and of the states would be favored by such a division of responsibility."

Probably because of these weasel words, Mr. Hoover and his commission are silent on what to do about the auditing of vocational funds. In general, the Hoover Commission wants to centralize within the department (or agency) as many housekeeping functions as possible and leave to the bureaus only "substantive programs."

Washington notes for school shopmen: The Air Force wants to hire 200 vocational training teachers to teach communications subjects at a Middle West base. The state public employment agencies are accepting applications. . . . Ralph Bradford, chief executive officer of the U. S. Chamber of Commerce, says business men "would rather the public

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schools give students a broad general education, plus knowledge of industrial life, than train them in narrow skills." . . . Private technical and vocational schools are banding together in a National Federation of Private School Associations to make sure that "the federal government does not go too far in aiding public schools and that there remains a place for the private school in American life . . ."

Eire . . . . . *from page 7*

Cultural Attractions at the Vocational School

A large number of outside activities take place in conjunction with the work of the school, and soon it becomes, as it were, the social center for the rural community. Art exhibitions are held in conjunction with the drawing classes, and picturess by eminent Irish artists are shown.

The rural science teacher interests himself in the promotion of young farmers clubs and ploughing competitions. The craft teacher assists in keeping alive the traditional crafts of the countryside; all the teachers, in fact, help in many ways the community in which they live.

The Celtic Renaissance

In 18 years, vocational education in Ireland has come a long way, and there is a long road yet to travel, but the effects of the scheme are already being felt in Irish life. The young Irishman and Irishwoman now have a new outlook and wider horizons than those who have gone before them.

In the smaller centers perhaps we have not reached the same pinnacles as other countries, but if energy, foresight, and determination are telling factors the Ireland of the future will pay back big dividends for the courage, zeal, and hope of those who, in the early days of this state, bent their energies to bring Ireland in line educationally with the other great countries of the world.

Correction

In the listing of federal officials on page 68 of the April issue of SCHOOL SHOP, the name of John R. Ludington, Specialist in Industrial Arts, U. S. Office of Education, was inadvertently omitted.

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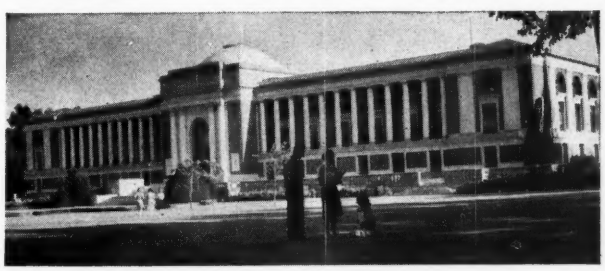

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It's a simple matter for students to keep their plane bits, chisels, gouges, knives, etc. sharp on one of these "Olivers." Each of the two models shown has one coarse and one fine oilstone, a dry emery wheel with tool rest, and adjustable tilting tool rest table fitted with tool holder for parallel grinding. Model shown below also has an emery cone and leather stropping wheel.

Write for Bulletins

OLIVER MACHINERY COMPANY, GRAND RAPIDS 2, MICH.

FROM WASHINGTON

BY MICHAEL PACA

THE Veterans Administration will not be budged. The change in its regulations, requiring public schools to submit detailed, certified statements of costs in training veterans, remains effective as of March 1. Pleas of schoolmen that July 1 would be a more suitable date have been turned down. "Even though contract negotiations are not completed until after the effective date, the contract will be made effective as of the date the regulation goes into effect for the individual school," says the VA. For schools which claim they had not learned about the change (officially known as Change Nine) 30 days before March 1 the effective date is April 1.

Let it not be said that the VA is unwilling to make "concessions" on Change Nine. Here are three:

1. No special form is needed by the school to list the cost data.

2. It is not necessary for the school to submit cost data for each course unless it charges different rates for different courses. For example, if the school claims $35 a month for a watch-making course and $30 a month for an auto-mechanics course, and is not willing to accept one overall rate, data must be submitted separately for each course.

3. The school may follow its own system of accounting provided it gives the VA "all the necessary information on which to determine a fair and reasonable cost."

"All the necessary information" includes expenses for actual cost of teaching and related personnel, travel expenses for instructors, consumable instructional supplies, textbooks, building operation and maintenance, and allowances for administration and supervision.

It is this broad requirement that is placing many questions in the minds of schoolmen. Here are six most commonly asked. Answers are through the courtesy of the Veterans Administration; translated, of course, insofar as VA lingo is translatable.

1. *Should the cost of library attendants, nurses, and other auxiliary staff members be included?*

Yes, the cost of their services may be included on a pro-rata basis provided that such services are customarily furnished to all students, veteran and nonveteran, and provided that it has been necessary for the school to add personnel to carry on such services for veterans. For example, if the school ordinarily provides a full-time librarian for its regular school program and did not add staff because of the veterans' program, no part of the librarian's salary could be charged to the VA. However, if the school added personnel solely because of the veterans' program, such additional costs may be charged to the VA.

2. *May the school charge for the replacement of small hand tools and purchase of reference books for use in shop courses?*

An approved school should have on hand small tools and reference books at the beginning of the course for use by veterans. If these become broken or worn out through normal use, replacement may be charged to the VA. Only items costing less than $5 each fall in this category of consumable supplies.

Expenditures must not include additions to inventories. In other words, if the institution has originally small tools for a class of 20 and desires to add 10 to the class capacity, the purchase of the additional 10 could not be considered as consumable supplies. (The small tools referred to are those items which are furnished by the school and are not to be confused with items which students personally own and for which separate reimbursement is provided.)

3. *Is cost of textbooks to be included in tuition rate?*

Where textbooks and supplies are provided by the school as part of the overall cost of tuition (and a separate charge, therefore, is not made to nonveteran students or claimed from the VA for veterans), cost of textbooks and supplies should be included. If the textbooks ordinarily are required to be purchased by nonveteran students separate and apart from the tuition charge, the cost of such books should not be included, but will be reimbursed separately in accordance with other VA regulations.

4. *What about the 10 percent handling charge on textbooks?*

A handling charge will be paid the school, unless there is included in the cost data the expense to the institution for procuring, handling, and issuing the textbooks. Thus, if the textbooks are procured by the director of veterans' training and his clerical staff and are issued by stockroom clerks and others whose salaries are included in the cost data, no handling charge will be allowed.

5. *On what basis may cost of building operation and maintenance be charged to VA?*

On the basis that the veteran clock-hour enrolment bears in relation to the total clock-hour enrolment in the buildings used. But don't include the cost of a new heating system or a new roof. These are improvements and are not chargeable to VA.

6. *What expenses may be included as administrative costs?*

The time of a regular member of the school personnel engaged in supervision of veterans may be pro-rated and charged to the VA. But in no event will any pro-rata part of a salary be included where the person is employed by the school for full-time duties and would be

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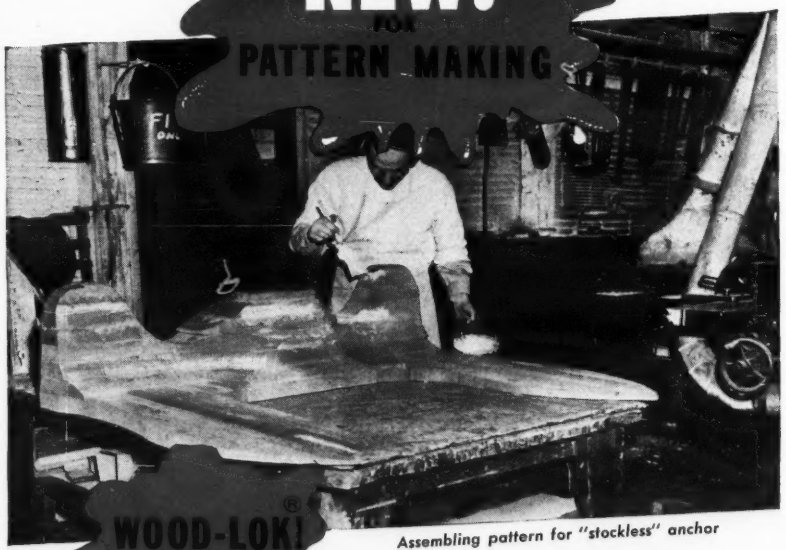

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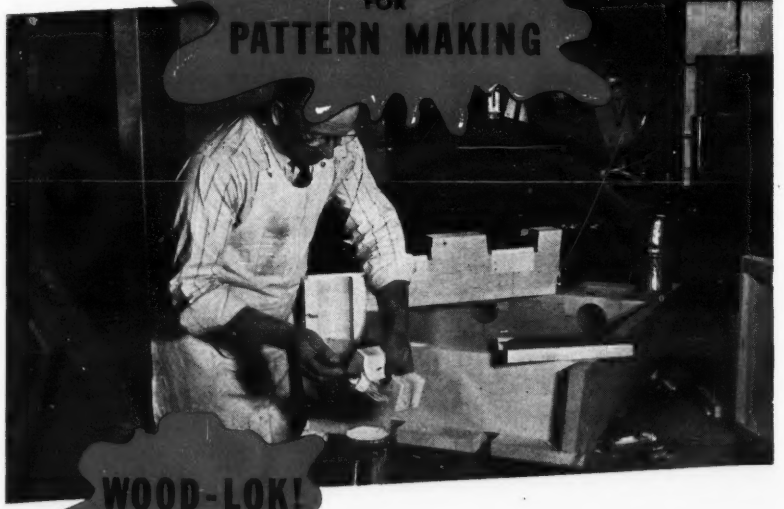

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